ADDITIONAL NOTES ON THE GENUS *SPHENODESME*. I

Harold N. Moldenke

SPHENODESME Jack

Additional & emended bibliography: J. C. Willis, Dict. Flow. Pl., ed. 5, 617. 1925; Fletcher, Kew Bull. Misc. Inf. 1938: 208--209, 401, 405--407, 409, & 441. 1938; Hill & Salisb., Ind. Kew. Suppl. 10: 218. 1947; J. C. Willis, Dict. Flow. Pl., ed. 6, 617. 1951; Angely, Cat. Estat. 8: [2]. 1956; Rouleau, Guide Ind. Kew. 177 & 348. 1970; Mold., Phytologia 45: 469, 510, & 511 (1980) and 46: 43--60. 1980.

SPHENODESME INVOLUCRATA (Presl) B. L. Robinson

Bibliography: Wall., Numer. List [47], nos. 1736 & 1737. 1829; D. Dietr., Syn. Pl. 3: 619. 1843; Presl, Bot. Bemerk. 148. 1844; Schau. in A. DC., Prodr. 11: 621, 623, 624, & 696. 1847; Walp., Repert. Bot. Syst. 4: 117. 1847; Miq., Fl. Ned. Ind. 2: 910. 1856; Buek, Gen. Spec. Syn. Candoll. 3: 110, 443, 464, & 502. 1858; Kurz, Rep. Veg. Andam. App. A: 45. 1870; Kurz, Forest Fl. Brit. Burma 2: 254 & 255. 1877; Gamble, Man. Indian Timb., ed. 1, 282 & 519. 1881; C. B. Clarke in Hook. f., Fl. Brit. India 4: 601. 1885; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 1, 1: 595 (1893) and imp. 1, 2: 1021 & 1213. 1895; Briq. in Engl. & Prantl, Nat. Pflanzenfam., ed. 1, 4 (3a): 181. 1895; Gamble, Man. Indian Timb., ed. 2, imp. 1, 545. 1902; Prain, Bengal Pl., imp. 1, 2: 837. 1903; Brandis, Indian Trees, imp. 1. 513. 1906; Solered., Syst. Anat. Dicot. Ergänz. 255. 1908; B. L. Robinson, Proc. Am. Acad. Sci. 5: 531. 1916; Gamble, Man. Indian Timb., ed. 2, imp. 2, 545. 1922; Parkinson, Forest Fl. Andam. Isls. 220, pl. 2, fig. 38. 1923; Gamble, Fl. Presid. Madras 2 (6): 1104. 1924; A. W. Hill, Ind. Kew. Suppl. 6: 198. 1926; Junell, Symb. Bot. Upsal. 1 (4): 134 & 138, fig. 209 a & b. 1934; Dop in Lecomte, Fl. Gén. Indochine 4: 899--901. 1936; Fletcher, Kew Bull. Misc. Inf. 1938: 207--208, 405, 441, & 442. 1938; Kanjilal & Das in De, Fl. Assam 3: 495--496 & 558. 1939; Fedde & Schust., Justs Bot. Jahresber. 60 (2): 574. 1941; Mold., Suppl. List Inv. Names 7. 1941; Worsdell, Ind. Lond. Suppl. 2: 404. 1941; Mold., Known Geogr. Distrib. Verbenac., ed. 1, 55, 56, 58--61, & 99. 1942; Mold., Alph. List Inv. Names 22, 41, & 43. 1942; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 2, 1: 595 (1946) and imp. 2, 2: 1021 & 1213. 1946; Hill & Salisb., Ind. Kew. Suppl. 10: 218. 1947; Mold., Alph. List Inv. Names Suppl. 1: 20. 1947; Mold., Known Geogr. Distrib. Verbenac., ed. 2, 128, 129, 133, 135, 137--139, 173, & 174. 1949; Erdtman, Pollen Morph. Pl. Tax., ed. 1, 448. 1952; Anon., Kew Bull. Gen. Ind. 274 & 293. 1959; Mold., Résumé 159, 164, 166, 172, 174, 176, 178, 180, 222, 275, 345, 350, 351, 384, & 439. 1959; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 3, 1: 595 (1960 and imp. 3, 2: 1021 & 1213. 1960; Mold., Résumé Suppl. 3: 35. 1962; Legris, Trav.

Sect. Scient. Inst. Franç. Pond. 6: 516. 1963; Prain, Bengal Pl., imp. 2, 2: 625. 1963; Erdtman, Pollen Morph. Pl. Tax., ed. 2, 448. 1966; Munir, Gard. Bull. Singapore 21: 319, 321, 325, 328, 334--340, 345, 373, & 375--378, map.2, pl. 2. 1966; Mold., Résumé Suppl. 15: 9, 10, 12, 19, 22, & 23. 1967; Munir, Biol. Abstr. 48: 4097. 1967; Mold. in Menninger, Flow. Vines 328 & 330. 1970; Brandis, Indian Trees, imp. 2, 513. 1971; Erdtman, Pollen Morph. Pl. Tax., ed. 3, 448. 1971; Mold., Fifth Summ. 1: 269, 278, 284, 285, 292, 297, 298, 302, 306, 313, 327, 368, 468, & 469 (1971) and 2: 623--625, 634, 719, & 843. 1971; Gamble, Man. Indian Trees, ed. 2, imp. 3, 545. 1972; Mold., Phytologia 23: 424 & 430 (1972) and 34: 277. 1976; Hsiao, Fl. Taiwan 4: 430--431. 1978; Mold., Phytologia 45: 53, 54, 403, & 404 (1980) and 46: 47, 49, 54, & 57--58. 1980.

Illustrations: Parkinson, Forest Fl. Andam. Isls. pl. 2, fig. 38. 1923; Junell, Symb. Bot. Upsal. 1 (4): fig. 209 a & b. 1934; Munir, Gard. Bull. Singapore 21: [335], pl. 2. 1966.

A large scandent shrub or climbing vine, to 16 m. long, branched from the base; stems obtusely tetragonal, to 1 cm. in diameter, glabrous; bark grayish or brownish-gray, corky-lamellate or warty; branches with prominent lenticels, shortly flavescent-tomentellous or glabrescent; branchlets obtusely tetragonal, mostly rusty-pubescent or stellate-tomentose with flavescent hairs, rarely glabrescent; principal internodes 1--11 cm. long; petioles rather slender, short, 5--13 mm. long, rusty-pubescent or strigillose, glabrescent in age; leaf-blades thin-coriaceous, dark-green above, pale-green beneath, ovate to ovate-oblong or ovate-lanceolate to lanceolate or oblong, 9--15 cm. long, 2.7--6 cm. wide, apically short-acuminate or acute and often apiculate, marginally entire, basally obtuse or rounded (rarely acute), pubescent or stellate-tomentose on both surfaces when young with flavescent-rufescent hairs, brownish-pubescent only beneath or glabrescent on both surfaces in age; midrib slender, flat above, prominent beneath; secondaries very slender, 4--7 per side, arcuate-ascending, obscure above, prominulous beneath, rather indistinctly joined in many loops near the margins; inflorescence paniculate, usually large, 6--30 cm. long, in the upper leaf-axils, stellate-tomentose with flavescent hairs throughout, the branches filiform, elongate, to 3 cm. long, wide-spreading, subflaccid; involucral bracts 6, white, turning purplish-red, varying from oblong or obovate to spatulate-lanceolate or spatulate, conspicuously venose, slightly unequal, 2--4.5 cm. long, 5--18 mm. wide, apically obtuse or subacute to emarginate, basally long-attenuate, floccose with flavescent-rufescent hairs; flower-buds green; flowers rather small, sessile, 7 per head, slightly odorous; calyx cyathiform, 2.5--10 mm. long, to 5 mm. wide, externally varying from rusty- or rufous- to tawny-tomentose, interior surface sericeous, the limb equally 5-toothed, the teeth triangular, apically acute; corolla pale-green to white or cream-colored, finally pink or deep-red, infundibular, the throat pubescent, the limb exserted, the lobes 5, obovate, apically blunt or truncate-obtuse; stamens very short, inserted in the corolla-throat; ovary resinous-punctate; stigma bifid; fruit green,

pseudo-capsular, globular, about 6 mm. in diameter, glabrous, enclosed in the fruiting-calyx.

This species is found naturally from India, Bangladesh, and the Andaman and Nicobar Islands, through Burma and Thailand, to Indochina, Malaya, and Borneo, north to Hainan and Taiwan. It is sometimes cultivated.

Recent collectors describe the species in the field as a scandent shrub, 2 1/2 feet tall, a woody climber, a "vine twining on trees", or even as a "tree" (*Shimizu & al. T.7676*); the bark smooth and green, the outer bark slash brittle, soft, the inner bark 1/4 in. thick, the cambium and sapwood yellow, subtending bracts 6, and fruit greenish. They have found it growing on flatlands and hillsides, in thickets, on roadside banks, in rocky places and open sandy forests, and in light woods, as well as on rocky ground in sunny places on limestone hills, at 30--1000 m. altitude, and have found it in flower from May to September and in December, in fruit in July and August. Phengkhlai says that it is "common on trees in evergreen forests" in Thailand, where Suvarnakosas reports it also "common in dry deciduous forests", but Phloenchit found it "not common in evergreen jungles". It is employed locally for medicine in Thailand and vernacular names recorded for it are "akar kulizat", "kanwè", "ka-nway", and "yan duk".

The "flowers" [corollas?] are described as having been "white" on *Clemens & Clemens 4143,* "greenish" on *Phloenchit 479* and *Suvarnakosos 1321,* "greenish-yellow" on *Kodoh & Abar SAN.82000,* and "pink, deep-red, and white" on *Chun & Tso 44669.* The Clemenses speak of its "beautiful masses of white flowers".

Kurz (1870) asserts that the species is "Common throughout the [Andaman] islands, especially along the eastern coasts". In his 1877 work he says that it is "Frequent in mixed forests [of Burma], from Pegu and Martaban down to Tenasserim; occasionally entering the drier hill forests up to 3,000 ft. elevation," flowering there in December and January and fruiting in April. Hsiao (1978) gives its natural distribution as "India, Malaya, and southern China" and saw no material of it from Taiwan.

Gamble (1902) describes the species as "A large deciduous climbing shrub of the Khasia Hills, Eastern Bengal, Burma and the Andaman Islands". Kanjilal & Das (1939) report that in Assam it flowers, as in Burma, in December and January, but fruits in February and March, occurring in the Northeastern Tract, Khasi Hills, Naga Hills, and Cachar. He misspells Schauer's surname as "Schaucer". Prain (1903) refers to the species as "A large climber" in the Chittagong region of Bangladesh. Clarke (1885) cites unnumbered collections of Wallich and of Hooker & Thomson from Khasia, of Keenan from Cachar, Wallich from Chittagong, Griffith from Moulmein, and Kurz from South Andaman island, as well as *Helfer 6010* from Tenasserim. Dop (1936) cites only unnumbered Clemens and Poilane collections from Annam [Vietnam], giving the overall distribution as "Inde, Chine, Haïnan, Malaisie, Formose". Fletcher (1938) cites only *Kerr 9812* & *20030* and *Winit 1586* from Thailand.

Erdtman (1966) has examined the pollen of *Hainan Exped. 44281*

from China and describes the grains as 3-colpate (longicolpate), subprolate, about 22 x 19 mu, the sexime slightly thinner than the nexine (the latter thicker at the poles than at the equator), very finely reticulate.

The *Congea paniculata* Wall., often included in the synonymy here, actually belongs in that of *S. involucrata* var. *paniculata* (C. B. Clarke) Munir.

It is of interest to note that Fletcher (1938), for his so-called *S. odorata,* cites *Kerr 11815* (the type collection) and *Winit 1264* from Thailand. Munir (1966) regards *S. involucrata* var. *pubescens* Mold. as identical to the typical form of *S. involucrata* (Presl) B. L. Robinson. He cites the following collections: INDIA: Khasi States: *Hooker f. & Thomson s.n.; Mc Lelland s.n.; Silva s.n.* [Wallich 1736]; *Simon s.n.* Madras: *Perrottet 101* & *160.* Manipur: *Bullock 811* & *868.* ANDAMAN ISLANDS: Long: *Ram 3640.* South: *Heining s.n.; King's Collector s. n.; Parkinson 16396; Prain s.n.* NICOBAR ISLANDS: *Kamphovener 3121; King's Collector s.n..* BURMA: *Ba-Pe 10529; Beddome 6526* & *6528; Chin 6044; Falconer 496; Helfer 42* & *54; Kau 273; Kurz 6525* & *6527; Lace 2736, 2796,* & *6072; Maung 12931; Meebold 14054; Parkinson 11283; Rogers 308; Wallich 1737.* THAILAND: *Garrett 1210; Hansen 6629; Kerr 1185, 9812,* & *20030; Phengkhlai 574; Suvarnakoses 1321; Winit 1264* & *1586.* VIETNAM: Annam: *Clemens 4143; Poilane 4984.* CHINESE COASTAL ISLANDS: Hainan: *Chun & Tso 44281* & *44669; A. Henry s.n.; How 73729* & *73733; Lau 3113* & *28317; Liang 64243; McClure 8331; Tang 483; Wang 36301.* GREATER SUNDA ISLANDS: Sabah: *Pereira 43691.* CULTIVATED: India: *Herb. Hort. Bot. Calcut. s.n.* Java: *Herb. Hort. Bogor. XF.26* & *XII.B. 206.*

It is perhaps worth noting here that the dates given by some recent authors for bibliographic references cited appear to be inaccurate -- for instance, the page in Wallich's catalogue with no. 1736 and no. 1737 was issued in 1829 [not "1828"], pages 193 to 576 of Walpers' Repertorium, volume 4, were issued in 1847 [not "1848"], and Miquel's Fl. Ind. Bat., volume 2, was issued in 1856 [not "1858"].

Material of *Sphenodesme involucrata* has been misidentified and distributed in some herbaria as *S. pentandra* Jack, *S. wallichiana* Schau., *Symphorema glabrum* Hassk., *Symphorema* sp., and *Petraeovitex* sp. On the other hand, the *Rock 688* & *921, Squires 855,* and *Wang 36301,* distributed as *Sphenodesme involucrata,* are *S. ferruginea* (W. Griff.) Briq.

Citations: INDIA: Assam: *Hooker f. & Thomson s.n.* [Mont. Khasia, 3000 ped.] (M, Mu--1060, Pd, S, W--2497363); *Silva s.n.* [Wallich 1736] (Pd). West Bengal: *Helfer 42* (Bz--23065, S, W--1668986), *121* (Mu). State undetermined: *Herb. Harvey s.n.* [Ind. orient. 1847] (Du--166526). BANGLADESH: *Griffith 6010* (Mu--1061, S). BURMA: Central Burma: *Kurz 1038* (Mu--1782). Tenasserim: *Falconer 496* (Bz--23066, Pd); *Helfer 6010* (T). ANDAMAN ISLANDS: South: *Heinig s.n.* [Jany. 1897] (Br), *s.n.* [27-10-1897] (Bz--23068, Pd); *King's Collector s.n.* [25 Feb. 1893]. THAILAND: *Max-*

well 71-58 (Ac); *Phengkhlai 574* (Cp); *Phloenchit 479* [Herb. Roy. Forest Dept. 9045] (Z); *Shimizu, Fukuoka, & Nalampoon T.7676* (Ac), *7711* (Ac); *Suvarnakoses 1321* [Roy. Forest Dept. 17979] (Sm). VIETNAM: Annam: *Clemens & Clemens 4143* (Ca--340471, E--955412, Gg-156309, Ln--70080, Mi, N, Ut--99317, W--1427865). MALAYA: Singapore: *"Wallich 1836"* (Pd). CHINESE COASTAL ISLANDS: Hainan: *Chun & Tso 44281* (Bi, Go, N, S), *44669* (B, N, W--1675420); *How 73729* (Bz--23069), *73733* (Bi, S); *Katsumada 21982* (Ca--322574); *Lau 3113* (Bi, S); *Liang 36301* (N), *64243* (Go, N); *McClure 1841* [Herb. Canton Chr. Coll. 8331 & 253.7203] (Bi, Gg--127993, N, Ph); *Wang 36301* (Mu). GREATER SUNDA ISLANDS: Sabah: *Bakar SAN.17325* (Z); *Kodoh & Aban SAN.82030* (Sn--49241). CULTIVATED: India: *Herb. Hort. Bot. Calcutt. s.n.* (Bz--23067, Pd). Java: *Bakhuizen s.n.* [Herb. Hort. Bot. Bogor. XV.F.25] (Bz--23057); *Herb. Bot. Bogor. 18412* (Bz--23058), *X.F.26* (Bz--23059, Bz--23060, Bz--25626, Bz--25627), *XII.B.206* (Bz--23486, Bz--23487), *XII.B.206 en a* (Bz--23061, Bz--23062, Bz--23063, Bz--25699), *XV.F.33* (Bz--26349, Bz--26350, Bz--26565, Bz, N).

SPHENODESME INVOLUCRATA var. *PANICULATA* (C. B. Clarke) Munir, Gard. Bull. Singapore 21: 338. 1966.

Synonymy: *Congea paniculata* Wall., Numer. List [47], nos. 1739 & 1739B, hyponym. 1829. *Symphorema paniculata* Heyne ex D. Dietr., Syn. Pl. 3: 619, in syn. 1843. *Symphorema paniculatum* Heyne ex Schau. in A. DC., Prodr. 11: 623, in syn. 1847. *Sphenodesma paniculata* C. B. Clarke in Hook. f., Fl. Brit. India 4: 600. 1885. *Sphenodesme paniculata* C. B. Clarke apud Jacks. & Hook. f., Ind. Kew., imp. 1, 2: 961. 1895.

Bibliography: Wall., Numer. List [47], nos. 1739 & 1739B. 1829; D. Dietr., Syn. Pl. 3: 619. 1843; Schau. in A. DC., Prodr. 11: 621 & 623. 1847; Buek, Gen. Spec. Syn. Candoll. 3: 110. 1858; C. B. Clarke in Hook. f., Fl. Brit. India 4: 600. 1885; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 1, 1: 595 (1893) and imp. 1, 2: 961. 1895; Brandis, Indian Trees, imp. 1, 513. 1906; Gamble, Fl. Presid. Madras 2 (6): 1104--1105. 1924; Mold., Known Geogr. Distrib. Verbenac., ed. 1, 55 & 99. 1942; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 2, 1: 595 (1946) and imp. 2, 2: 961. 1946; Razi, Journ. Mysore Univ. 7 (4): 64. 1946; Mold., Known Geogr. Distrib. Verbenac., ed. 2, 128 & 174. 1949; Mold., Résumé 164 & 439. 1959;Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 3, 1: 595 (1960) and imp. 3, 2: 961. 1960; Nair & Rehman, Bull. Bot. Gard. Lucknow 76: 22. 1962; Munir, Gard. Bull. Singapore 21: 319, 321, 325, 328, 337--340, 373, & 375--378, map 2, pl. 3. 1966; Mold., Résumé Suppl. 15: 9, 19, & 23. 1967; Munir, Biol. Abstr. 48: 4097. 1967; Brandis, Indian Trees, imp. 2, 513. 1971; Mold., Fifth Summ. 1: 278, 284, & 468 (1971) and 2:624 & 843. 1971; Mold., Phytologia 23: 424 (1972) and 45: 54 & 407. 1980.

Illustrations: Munir, Gard. Bull. Singapore 21: [339], pl. 3. 1966.

Razi (1946) refers to this plant as a chamaephyte in Raunkiaer's classification of life forms, and records it from Mysore, India.

Nair & Rehman (1962) describe its pollen as "3-zonicolporate, subprolate (34 x 26 mu; range 32--39 x 25--28 mu). Colpi ends acute, tenuimarginate. Apocolpium diameter 3.5 mu. Exine 1.4 mu thick. Ectine almost as thick as endine, granulate."

Jackson (1893) asserts that the *Congea paniculata* of Wallich (1829) is in part this taxon and in part *Symphorema involucratum* Roxb. Although several authors ascribe the name, *Symphorema paniculata* Heyene, to Wallich's Numerical List (1829), the binomial does not actually occur there and seems to have first appeared in Dietrich's work (1843). In Wallich's work it is merely stated that Heyne considered the collection to represent an undescribed species of *Symphorema*.

Clarke (1885) cites only the Wallich type collection and an unnumbered Rottler collection from Kurg and a Johnstone collection from Cochin. He comments that the taxon is "Very near *S. microstylis* except as to the obtuse corolla-lobes". Munir (1966) cites *Bourdillon 126, Heyne s.n.* [Wallich 1739], *Johnstone s.n., Rottler s.n., Wallich 1739B,* and *Wight 910* from India and *Meebold 14407* from Tenasserim, Burma.

SPHENODESME INVOLUCRATA var. *PUBESCENS* Mold., Dansk Bot. Arkiv 23: 86. 1963.

Synonymy: *Congea tomentosa* var. *pubescens* Hocking, Excerpt. Bot. A.8: 227, sphalm. 1965.

Bibliography: Mold., Dansk Bot. Arkiv 23: 86. 1963; Hansen, Excerpt. Bot. A.7: 607. 1964; Hocking, Excerpt. Bot. A.8: 227. 1965; Munir, Gard. Bull. Singapore 21: 325 & 334. 1966; Munir, Biol. Abstr. 48: 4097. 1967; Mold., Fifth Summ. 1: 298 (1971) and 2: 843. 1971; Mold., Phytologia 45: 54. 1980.

This variety differs from the typical form of the species in its decidedly pubescent entire lower leaf-surfaces.

Thus far, the variety is known only from the type collection which Munir (1966) reduces to synonymy under the typical form of the species. It has been found only in evergreen forests, at about 100 m. altitude, flowering in January.

Citations: THAILAND: *Sørensen, Larsen, & Hansen 6629* (Z--type).

SPHENODESME MEKONGENSIS Dop, Bull. Soc. Bot. France 61: 318--319. [as *Sphenodesma*]. 1915; Prain, Ind. Kew. Suppl. 5, imp. 1, 248. 1921

Synonymy: *Sphenodesma mekongensis* Dop, Bull. Soc. Bot. France 61: 318. 1915.

Bibliography: Dop, Bull. Soc. Bot. France 61: 318--319. 1915; Prain, Ind. Kew. Suppl. 5, imp. 1, 248. 1921; Dop in Lecomte, Fl. Gén. Indo-chine 4: 899 & 901. 1936; Fletcher, Kew Bull. Misc. Inf. 1938: 405, 407, 441, & 442. 1938; Fedde & Schust., Justs Bot. Jahresber. 60 (2): 574. 1941; Mold., Known Geogr. Distrib. Verbenac., ed. 1, 59, 60, & 99 (1942) and ed. 2, 137, 138, & 174. 1949; Mold., Résumé 176, 178, & 439. 1959; Prain, Ind. Kew. Suppl. 5, imp. 2, 248. 1960; Munir, Gard. Bull. Singapore 21: 316, 318, 319, 325, 330, 354, [355], 373, 376, & 378, pl. 10. 1966; Munir, Biol.

Abstr. 48: 4097. 1967; Mold., Fifth Summ. 1: 298 & 302 (1971) and 2: 844. 1971; Mold., Phytologia 46: 47. 1980.

Illustrations: Munir, Gard. Bull. Singapore 21: [355], pl. 10. 1966.

This species is based on an unnumbered Thorel collection from Xang-Kay, by the Mekong River, in Laos, deposited in the Paris herbarium. Dop (1915) says that "Cette espèce, insuffisammente connue, se rapproche par le forme du calice du *Sph. Jackiana* Schauer; cependant la pubescence du calice, les cymes 3--5-flores, l'en éloignent nettement." Collectors have encountered the plant in moist and evergreen forests, at 100--900 m. altitude.

Dop (1936) cites unnumbered collections by Kerr, Poilane, and Thorel from Laos. Fletcher (1938) cites *Kerr 8825* and *Winit 1961* from Thailand. Munir (1966) cites *Thorel s.n.* from Laos and *Kerr 8825* & *20720* and *Winit 1961* from Thailand. Maxwell reports finding it in flower in March.

The original Dop description of this species is often cited as published in "1914", but does not appear actually to have been published until 1915.

Citations: LAOS: *Maxwell 72-71* (Ac, Z).

SPHENODESME MOLLIS Craib, Kew Bull. Misc. Inf. 1912: 154 [as *Sphenodesma*]. 1912; Prain, Ind. Kew. Suppl. 5, imp. 1, 248. 1921.

Synonymy: *Sphenodesme annamitica* Dop, Bull. Soc. Hist. Nat. Toulouse 64: 573--574. 1932. *Sphenodesme smitinandi* Mold., Phytologia 8: 393. 1962. *Sphenodesma smitinandi* [Mold.] ex Hocking, Excerpt. Bot. A.6: 455. 1963. *Sphenodesme pierrei* var. *thailandica* Mold., Phytologia 14: 399. 1967. *Sphenodesme smitinandii* Mold. apud G. Taylor, Ind. Kew. Suppl. 14: 127. 1970.

Bibliography: Craib, Kew Bull. Misc. Inf. 1912: [Contrib. Fl. Siam Dicot.] 154 & 167. 1912; Fedde & Schust., Justs Bot. Jahresber. 40 (2): 336. 1915; Prain, Ind. Kew. Suppl. 5, imp. 1, 248. 1921; Dop, Bull. Soc. Hist. Nat. Toulouse 64: 573--574. 1932; Dop in Lecomte, Fl. Gén. Indo-chine 4: 899, 904, & 907--908. 1936; Fletcher, Kew Bull. Misc. Inf. 1938: 441 & 443. 1938; A. W. Hill, Ind. Kew. Suppl. 9: 265. 1938; Mold., Known Geogr. Distrib. Verbenac., ed. 1, 59, 60, & 99 (1942) and ed. 2, 137, 173, & 174. 1949; Anon., U. S. Dept. Agr. Bot. Subj. Index 15: 14359. 1958; Mold., Résumé 176, 178, & 439. 1959; Prain, Ind. Kew. Suppl. 5, imp. 2, 248. 1960; Mold., Phytologia 8: 393. 1962; Mold., Résumé Suppl. 4: 8 (1962) and 5: 6. 1962; Hocking, Excerpt. Bot. A.6: 455. 1963; Mold., Biol. Abstr. 42: 1517. 1963; Mold., Résumé Suppl. 12: 12. 1965; Munir, Gard. Bull. Singapore 21: 318, 319, 325, 329, 345--347, 373, & 375--378, pl. 6. 1966; Hocking, Excerpt. Bot. A.12: 425. 1967; Mold., Phytologia 14: 399. 1967; Mold., Résumé Suppl. 15: 10, 15, 22, & 23. 1967; Munir, Biol. Abstr. 48: 4097. 1967; Mold., Biol. Abstr. 49: 2290. 1968; Mold. in Menninger, Flow. Vines 330. 1970; G. Taylor, Ind. Kew. Suppl. 14: 127. 1970; Mold., Fifth Summ. 1: 290, 298, 302, & 368 (1971) and 2: 624 & 844. 1971; Mold., Phytologia 46: 47 & 54. 1980.

Illustrations: Munir, Gard. Bull. Singapore 21: [346], pl. 6. 1966.

This species is based on *Kerr 2075-K* from Sriracha, Thailand, deposited in the Edinburgh herbarium. Munir (1966) notes that it "is allied to *S. griffithiana* from which it is easily distinguished by its leaves being densely pubescent underneath, [the] calyx sericeous without and [the] corolla densely villous in the throat". *Sphenodesme smitinandi* Mold. is based on *Smitinand 4852,* also from Thailand, deposited in my personal herbarium. *Sphenodesme annamitica* Dop is based on *Poilane 5342* & *9637* from Annam, Vietnam.

Recent collectors describe *S. mollis* as a woody climber, climbing shrub, or vine, to 15 feet long, with "yellowish-brown involucres". The "flowers" [corollas?] are said to have been "ashy-gray" on *Sangkhachand 555,* "white" on *Hansen & al. 1191,* "yellowish" on *Bunkhrang 22,* and "bluish" on *Smitinand 4852;* the "fruit and bracts pale-green" on

Collectors have encountered the species in forests on granite hills, in scrub-jungle on riverbanks, in open sandy forests, deciduous forests on lateritic soil, and dry deciduous forests. It is reported to be "common" along roadsides and in evergreen forests and "very common" in dry scrub on limestone hills. Bunkhrang, however, found it "not common" in dry evergreen forests on hillsides and Smitinand reports it "scattered" in old clearings. Collectors have encountered it at near sealevel to 570 m. altitude, flowering in February, March, August, September, November, and December, fruiting from October to December.

Sphenodesme pierrei var. *thailandica* Mold. is based on *Larsen 8326* from in scrub at Tha Kilen, Thailand, collected on November 19, 1961, and deposited in my personal herbarium. The collector notes that it is "very common in scrub all over the district". It has also been encountered "in scrub vegetation on sandy soil near the sea", at 25 m. altitude, flowering in August.

Fletcher (1938) cites from Thailand: *Kerr 2075, 7971, 9117, 9688, 10966, 11035, 11063,* & *13436, Marcan 552, 1590, 2227,* & *2739,* and *Put 457* & *1107. Kerr 11035* represents cultivated material.

Dop (1936) cites only an unnumbered Kerr collection from Thailand. Munir (1966) cites the following collections: THAILAND: *Burkill 1260; Kerr 2075, 9117, 9688, 10107, 10966, 11063,* & *13436; Larsen 8048, 8326, 8462,* & *9051; Marcan 552, 1590, 2227,* & *2739; Nielsen 644; Put 457* & *1107; Sangkhachand 555; Smitinand 4852.* VIETNAM: Annam: *Poilane 5342* & *9637.* CHINA: Yünnan: *A. Henry 13225.* CULTIVATED: Thailand: *Kerr 11035.*

Material of *S. mollis* has been misidentified and distributed in some herbaria as *S. ferruginea* Briq., *S. microstylis* Clarke, *S. pentandra* Jack, *S. robinsonii* Dop, *S. unguiculata* Schau, and *Symphorema* sp. On the other hand, the *Poilane 11598* and *Squires 855,* distributed as *S. mollis,* actually represent *S. ferruginea* (W. Griff.) Briq.

Citations: THAILAND: *Beusekom & Charoenpol 1901* (Ac); *Bunkh-*

rang 22 [Herb. Roy. Forest Dept. 26221] (Z); *Hansen, Seidenfaden, & Smitinand 11191* (Ac, Cp); *K. Larsen 8048* (S), *8326* (Z), *8462* (Cp), *9051* (Cp); *Larsen, Smitinand, & Warncke 1502*(Ac), *1604* (Ac); *Maxwell 72-98* (Ac), *73-700* (Ac); *Rock 664* (W--1171415); *Sangkhachand 555* [Herb. Roy. Forest Dept. 16178] (Z); *Smitinand 4852* (Z). CHINA: Yünnan: *A. Henry 13225* (N, N).

SPHENODESME PENTANDRA Jack, Malay. Misc., imp. 1, 1: 19. 1820.

Synonymy: *Sphenoderme pentandra* Jack ex Wall., Numer. List [47], no. 1735, in syn. 1829. *Congea jackiana* Wall., Numer. List [47], no. 1735. 1829. *Sphaenodesma jackiana* (Wall.) Schau. in A. DC., Prodr. 11: 622. 1847. *Sphaenodesma pentandra* Jack apud Schau. in A. DC., Prodr. 11: 622, in syn. 1847. *Sphenodesme acuminata* Wight, Icon. Pl. Ind. Orient. 2: pl. 1476. 1849. *Sphenodesme pentandra* Wight, Icon. Pl. Ind. Orient. 4 (3): 14, in syn. 1849. *Sphenodesma pentandra* W. Griff., Notul. Pl. Asiat. 4: 181-182. 1854. *Sphaenodesme pentandra* Jack ex Miq., Fl. Ned. Ind. 2: 909, in syn. 1856;Corner & Watanabe, Illust. Guide Trop. Pl. 766. 1969. *Sphaenodesma jackiana* Schau. ex Miq., Fl. Ned. Ind. 2: 909. 1856. *Sphaenodesma acuminata* Wight ex Miq., Fl. Ned. Ind. 2: 910, in syn. 1856. *Symphorema jackianum* Kurz, Forest Fl. Brit. Burma 2: 255. 1877. *Sphenodesma acuminata* Wight apud C. B. Clarke in Hook. f., Fl. Brit. India 4: 602, in syn. 1885. *Sphenodesma jackiana* Schau. apud C. B. Clarke in Hook. f., Fl. Brit. Ind. 4: 602, in syn. 1885; J. Schmidt, Bot. Tidsskr. 26: 174. 1904. *Sphenodesma pentandra* Jack ex Kuntze, Rev. Gen. Pl. 2: 509. 1891. *Sphenodesma pentandra* Jacq. ex Briq. in Engl. & Prantl, Nat. Pflanzenfam., ed. 1, 4 (3a): 180. 1895. *Sphenodesme pentandra* var. *calycina* Pierre ex Dop, Bull. Soc. Bot. France 61: 318. 1915. *Sphenodesme jackiana* Schau. ex H. J. Lam, Verbenac. Malay. Arch. 335, in syn. 1919. *Sphenodesme jackiana* DC. ex Mold., Résumé Suppl. 3: 35, in syn. 1962. *Congea jackiana* Wall. apud Munir, Gard. Bull. Singapore 21: 357, in syn. 1966. *Sphenodesme pentandra* Griff. ex Mold., Résumé Suppl. 15: 23, in syn. 1967.

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Bot. Tidsskr. 26 [Fl. Koh. Chang 8]: 174--175. 1904; F. N. Will., Bull. Herb. Boiss., ser. 2, 5: 432. 1905; Brandis, Indian Trees, imp. 1, 513--514. 1906; King & Gamble, Journ. Asiat. Soc. Beng. 74 (2 extra): 860 & 863--864. 1908; Craib, Kew Bull. Misc. Inf. 1911: 445. 1911; Craib, Contrib. Fl. Siam Dicot. 167. 1912; Dop, Bull. Soc. Bot. France 61: 318--320. 1915; H. J. Lam, Verbenac. Malay. Arch. 332, 335--336, & 368. 1919; Ridl., Journ. Fed. Malay States Mus. 10: 111. 1920; Bakh. in Lam & Bakh., Bull. Jard. Bot. Buitenz., ser. 3, 3: x. 1921; H. J. Lam in Lam & Bakh., Bull. Jard. Bot. Buitenz., ser. 3, 3: 99 & xvi. 1921; E. D. Merr., Bibl. Enum. Born. Pl. 518. 1921; Ridl., Fl. Malay Penins. 2: 638--640, fig. 130. 1923; Wangerin, Justs Bot. Jahresber. 51 (1): 553. 1923; Gamble, Fl. Presid. Madras 6: 1104 & 1105. 1924; Stapf, Ind. Lond. 6: 181. 1931; Dop in Lecomte, Fl. Gén. Indo-chine 4: 899 & 904--906. 1936; Fletcher, Kew Bull. Misc. Inf. 1938: 405 & 441--443. 1938;Kanjilal & Das in De, Fl. Assam 496. 1939; Mold., Suppl. List Comm. Names [1], 2, 5, 13, & 16. 1940; Mold., Suppl. List Inv. Names 7. 1941; Worsdell, Ind. Lond. Suppl. 2: 404. 1941; Mold., Alph. List Inv. Names 22, 41, & 43. 1942; Mold., Known Geogr. Distrib. Verbenac., ed. 1, 55, 57--61, 65, & 99. 1942; Mold., Phytologia 2: 112. 1944; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 2, 1: 595 (1946) and imp. 2, 2: 961 & 1021. 1946; H. N. & A. L. Mold., Pl. Life 2: 65. 1946; Mold., Alph. List Inv. Names Suppl. 1: 20. 1947; Mold., Known Geogr. Distrib. Verbenac., ed. 2, 125, 128, 129, 132, 135, 137--140, 146, & 174. 1949; M. R. Henderson, Malay. Nat. Journ. 6: 381, fig. 352. 1950; Anon., Kew Bull. Gen. Index 274. 1959; Mold., Résumé 159, 164, 166, 171, 174, 176, 178, 180, 194, 222, 275, 343, 345, 350, 427, & 439. 1959; Mold., Résumé Suppl. 1: 12. 1959; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 3, 1: 595 (1960) and imp. 3, 2: 961 & 1021. 1960; Deb, Bull. Bot. Surv. India 3: 315. 1961; Munir, Gard. Bull. Singapore 21: 315, 318, 319, 323, 325, 327, 330, 337, 354, 357--363, 373, & 375--378, map 4, pl. 12. 1966; Mold., Résumé Suppl. 3: 17, 20, & 75 (1962), 4: 8 (1962), and 15: 8--12, 15, 19, 22, & 23. 1962; Munir, Biol. Abstr. 48: 4097. 1967; Mold., Résumé Suppl. 16: 13 & 27. 1968; Corner & Watanabe, Illustr. Guide Trop. Pl. 766. 1969; Mold. in Menninger, Flow. Vines 328. 1970; Brandis, Indian Trees, imp. 2, 513--514. 1971; M. A. Martin, Introd. Ethnobot. Camb. 142. 1971; Roxb., Fl. Ind., ed. 2, imp. 3, 476. 1971; Mold., Phytologia 23: 423 & 435 (1972), 26: 365 (1973), and 28: 446 & 451. 1974; Gibbs, Chemotax. Flow. Pl. 3: 1753 & 1754. 1974; M. R. Henderson, Malay. Wild Fls. Dicot., imp. 2, 381, fig. 352. 1974; Jack, Descr. Malay. Pl., imp. 2, 1: 19--20. 1977; Jack., Malay. Misc., imp. 2, 1 (1): 19--20 & opp. A. 1977;B. C. Stone, Henders. Malay. Wild Fls. Append. 16. 1977; Mold., Phytologia 36: 38 (1977), 42: 300 (1979), 45: 54, 214, 347, & 403 (1980), and 46: 47--49 & 57. 1980.

Illustrations: Wight, Icon. Pl. Ind. Orient. 4 (3): pl. 1476. 1849; Ridl., Fl. Malay Penins. 2: 639, fig. 130. 1923; M. R. Henderson, Malay Nat. Journ. 6: 381, fig. 352. 1950; Munir, Gard. Bull. Singapore 21: [358], pl. 12. 1966; Corner & Watanabe, Illust.

Guide Trop. Pl. 766. 1969; M. R. Henderson, Malay Wild Fls. Dicot. 381, fig. 352. 1974.

A scandent shrub, 3--10 m. tall, or woody liana, often high-climbing, sometimes erect; stems to 3 cm. in diameter at breast height; branchlets slender, obtusely subtetragonal, lenticellate, sometimes shallowly sulcate, varying from sparsely hairy or puberulent to pubescent-tomentose when young (denser near the nodes), soon glabrescent; twigs grayish-brown; nodes not annulate; principal internodes 5--11 cm. long; leaves decussate-opposite; petioles slender, about 5 mm. long, varying from densely pubescent or sparsely hairy to glabrate; leaf-blades chartaceous, rather uniformly green on both surfaces, brunnescent in drying, the uppermost ones elliptic or oblong-elliptic, the lower lanceolate-oblong, 6.5--17 cm. long, 3.3--9 cm. wide, apically acute or short-acuminate, marginally mostly entire, basally rounded or somewhat rounded. glabrous and very shiny above, glabrous or subglabrous beneath or often somewhat hairy on the midrib and barbellate in the axils of some of the secondaries beneath; midrib slender, flat or subimpressed above, sharply prominent beneath; secondaries very slender, 4 or 5 per side, obscure or indiscernible above, sharply prominulent beneath, ascending, arcuate or rather straight; veinlet reticulation rather abundant, open, obscure or indiscernible above, the tertiaries often prominulous beneath; inflorescence paniculate, often large, terminal and in the axils of the upper leaves, its sympodia slender, 1.6--2.8 cm. long, sparsely pilose, the stipitate cymes capitate, 7-flowered, borne in racemiform fashion on rachids to 25 cm. long; peduncles slender, tetragonal, exactly similar to the adjacent branchlets and rachis, densely puberulent or glabrous; inflorescence-branches filiform, 1.2--2.5 cm. long, scattered-pilosulous or glabrous; involucre greenish or light-greenish, its bracts 6, in two groups of 3 each, oblong or narrowly oblong to lanceolate, apically obtuse or very slightly subacute to subacuminate, entire, basally abruptly acute, venose, glabrous and very shiny on both surfaces or very sparsely and obscurely scattered-pilose beneath, often more pubescent basally, the larger terminal one of each set of 3 up to 1.7 or 2 cm. long and 4--7 mm. wide (in fruit to 2.5--3 cm. long and 7--9 mm. wide), the smaller lateral ones 1.5--1.7 cm. long and 3--4 mm. wide (in fruit 2.2--2.5 cm. long and 5--7 mm. wide); flowers 7, sessile, fragrant; calyx herbaceous, light-greenish, tubular-campanulate, sparsely pubescent or subglabrate to glabrous, 10-ribbed, 4--6 mm. long, glandular, its tube about 5 mm. long, 5 mm. wide at the apex, its rim 5-toothed, the teeth broadly triangular or ovate, erect, often ciliate-margined, apically acute or acuminate, often with an additional, variable and irregular, horn-like, recurved or reflexed, linear or lanceolate, accessory tooth in each sinus and about as long as the ordinary teeth; corolla usually blue or bluish to purple, externally glabrous, densely villous in the throat, about 5 mm. long, the limb 5-lobed, the lobes oblong, the lower half often covered by the long hairs of the throat; stamens 5, inserted in

the throat of the corolla-tube; filaments rather stout, included; anthers exserted; style about 6 mm. long when mature; stigma shortly bifid; ovary densely villous, glandular; fruiting-calyx 7--8 mm. long; fruit green, drupaceous, 1-seeded.

The species occurs naturally from India, Bangladesh, and Burma, through Indochina, Thailand, and Malaya, to Borneo and north to southern China and Hainan island. It is based on an unnumbered Jack collection from Pulo Pinang [Penang], Malaya, deposited in the Edinburgh herbarium. The type collection is noteworthy in having rather densely short-pubescent or puberulent branchlets, petioles, peduncles, and rachids, scattered-pilosulous inflorescence-branches, and the involucral bracts sparsely scattered-pilose beneath. *Poilane s.n.* and *Pierre 1095* on the other hand, are completely glabrous throughout. It is possible that two taxa are involved here, and Pierre notes for his *S. pentandra* var. *calycina:* "ramulis puberulis nec tomentosis fere omnino glabris", implying, again, that the typical form of the species is the tomentose one, with the sparsely puberulent to glabrate form as distinct. This may be what will finally be considered the better disposition of these specimens.

The name, *Sphenodesme jackiana* Schau., has been reduced to synonymy under *S. pentandra* Jack by many authors, including Clarke (1885), King & Gamble (1905), and Lam (1919), while Wight, in his Icon. Pl. Ind. Orient. (1849), used the binomial in error for *S. pentandra* in Volume 4, part 3, page 14, and, also in error, for his own *S. griffithiana* on plate 1477 [as "*S. jackiana* Wight"] of the same work. On plate 1476 he calls the plant *S. acuminata* Wight.

Lam (1919) reduced *Congea azurea* Wall. to synonymy under *S. pentandra,* but I regard it better placed as a form of *C. tomentosa* Roxb.

Recent collectors have found *S. pentandra* growing in dry land along rivers and smaller streams, in sandy thickets, in coastal scrub and scrub-jungle, in the deep shade of mixed woods on limestone hills, at the edges of forests, in evergreen forests and in open disturbed areas in such forests, from near sealevel to 1330 m. altitude, in flower from January to April and in June, in fruit from January to March and in May.

The corollas are said to have been "blue" on *Chun 1090, Hansen & Smitinand 12157,* and *Lei 439,* "purple" on *Sangkhachand 581,* "green" on *Liang 61598,* and "greenish" on *Pholenchit 1543* and *Smitinand 2200.* Corner & Watanabe (1969) describe them as "bluish".

Sangkhachand reports the species "common" in evergreen forests in Thailand, while Smitinand found it "scattered" there and Pholenchit found it "scattered in deciduous forests". Henderson (1974) reports it "common in the lowlands on the edges of forests and on riverbanks" in Malaya. On Hainan Island Lei found it "fairly common on dry level land in sandy soil of thickets and village commons", but Lau reports it "rare in clay soil on dry gentle slopes". Griffith (1854) records it from Malacca, Kuntze (1891) from Cochinchina, Deb (1961) from Manipur [India], and Martin (1971) from Cambodia,

Laos, Vietnam, Thailand, Malaysia, India, and China.

Griffith (1854) describes the species as "An elegant shrub hair of faux stupose and fragrance very pleasant, upper 2 laciniae of corol. are outermost, 5th innermost, that of calyx open. Each branch of the style has its own canal. It is more Verbenaceous in its pistillum than in any other part. Considerable time elapses between the expansion of all the flowers, the central one is most precocious."

Jack (1843) comments that "There is always one leaflet less in the involucrum than the number of flowers in the fascicle, the central flower having no fulcrum. This species was sent to Dr. Roxburgh from Sylhet [Bangladesh] and by him called *Roscoea* that name, however, being pre-occupied, a new one has become necessary. I have therefore given it that of *Sphenodesme* (fasciculus alatus)."

Clarke (1885) placed *Congea azurea* Wall., *C..pentandra* Wall., and *Roscoea pentandra* Roxb. in the synonymy of what he called "*P.* [sic] *pentandra* Jack" -- the last 2 of these names, however, belong to *Sphenodesme pentandra* var. *wallichiana* (Schau.) Munir and the first is a form of *Congea tomentosa* Roxb. *Sphenodesme wallichiana* Schau. has also been placed in the synonymy of typical *S. pentandra* Jack, but actually belongs in that of var. *wallichiana*. Dietrich (1843) accepted *Congea jackiana* Wall. as the name for what we now call *Sphenodesme pentandra*, with *Roscoea pentandra* Roxb. and *Sphenodesme pentandra* Jack as synonyms.

Clarke (1885) comments that "In unexpanded flowers the calyx-limb appears obtusely 5-toothed; after flowering the teeth are sometimes triangular abbreviated, sometimes lanceolate-subulate, and 5 linear teeth are developed in the sinuses. Wallich declares (in Hook. Bot. Misc. 1: 286) that Jack mistook his Malacca plant for Roxburgh's Silhet one, and accordingly Wight and Schauer call the Malayan plant *S. Jackiana* or *acuminata*; but the calyx-teeth are so little longer, and other points so exactly accord, that the species have to be united."

Dop (1915) maintains *S. jackiana* Schau. as distinct from *S. pentandra* Jack and separates them as follows:

1. Calice à 10 dents même avant l'épanouissement de la fleur -- *Sphenodesme jackiana;*

1a. Calice jeune presque tronqué, à 5 dents courtes, dents accessoires courtes n'apparaissant qu'après la floraison -- *Sphenodesme pentandra*.

As synonyms of *S. jackiana* Schau. he lists *S. pentandra* "Jack, Mal. Misc., I, p. 19 et in Hook. Bot. Misc., VI, p. 285 (pro parte); C.-B. Clarke in Hook. f. Fl. Br. Ind., IV, p. 602 (pro parte)," *Congea jackiana* Wall, and *S. pentandra* var. *calycina* Pierre. As synonyms of *S. pentandra* Jack he lists "Jack, loc. cit. (pro parte); Wight, Ic., pl. 1475; C.-B. Clarke in Hook. f., Fl. Br. Ind., IV, p. 602 (pro parte)," *S. wallichiana* Wight, *S. acuminata* Wight, *Symphorema jackianum* Kurz, *Roscoea pentandra* Roxb.,*Congea pentandra* Wall., and *C. azurea* "Wall. (pro parte)".

Kurz (1877) asserts that *Sphenodesme pentandra* is found naturally in the "Jungles of South Tenesserim", Burma.

Vernacular and common names reported for *Sphenodesme pentandra* are "akar kĕtu-kĕtu", "akar lintang ruas", "akar subang", "akar tanak rimau", "bunga kĕrtas", "car-stud climber", "lentang ruas", "paper flower", "pe re lan san", "sang samul", "shan pak tang", and "vɔ:r khsuəh".

Gibbs (1974) reports cytogenesis absent from the leaves, syringin absent from the stems, and the results of an HCl/methanol test negative.

It should be noted that a number of citations in the bibliography of this species (above) are misdated by some recent authors; e.g., Wallich (1829) as "1828", Wight (1850) as "1849", Miquel (1856) as "1858", Briquet (1895) as "1897", King & Gamble (1908) as "1909", and Walpers (1845) as "1848".-- of the last-named work page 1--192 of volume 4 were issued in 1845, pages 193--576 in 1847. For purposes of establishing priority in nomenclature, and for other reasons, it is important the the correct publication dates of cited works are ascertained.

Clarke (1885) cites no collections for this species, noting merely that it is "frequent" from Assam and the Khasia Mountains to Malacca. King & Gamble (1908) cite *Curtis 2522* from Langkawi, *Ridley 8320* from Kedah, *Curtis 269* and *Wallich 1735/1* from Penang, *Ridley 9391* from Wellesley, *King's Collector* [Kunstler] *3100, 4532, 7691,* and *10642,*and *Scortechini 519* from Perak, *Cuming 2388, Derry 40, Griffith s.n.,* and *Maingay 1195* from Malacca, *Ridley 2160* from Pahang, and *Ridley 11122* from Johore, as well as *Curtis s.n.* from "Junkseylon or Tongka".

Fletcher (1938) cites *Annandale s.n., Collins 1388, 1416,* & *1969, Curtiss 2522* & *s.n., Haniff 15478, Haniff & Nur 7070, KamLa s.n.* [Herb. Kerr 16535], *Kerr 11603, 11816, 12583, 13825, 14070, 15396,* & *16376, Kloss 6707* & *7038, Marcan 1590, Ridley 14937, Ridley & Curtis 8320,* and *Vanpruk 848,* all from Thailand. *Kerr 11035* came from cultivated material.

Dop (1936) cites the following collections from Indochina: Annam: *Poilane s.n.* Cambodia: *Chevalier s.n., Geoffray s.n., Harmand s. n., Pierre s.n.,* and *Poilane s.n.* Cochinchina: *Germain s.n. Harmand s.n., Lefèvre s.n., Pierre s.n.,* and *Poilane s.n.* Laos: *Harmand s.n.* and *Poilane s.n.,* and from Thailand: *Kerr s.n. Schmidt s.n.*

Lam (1919) cites *Griffith 6009* and *Maingay 1159* from Malaya, *Forbes s.n.* and *Hemsley s.n.* from Hainan, *Williams s.n.* from Thailand, *Gamble s.n.* and *King s.n.* from Burma.

Munir (1966) cites the following: THAILAND: *Annandale s.n.; Collector undetermined 607; Collins 495, 632, 1388, 1416,* & *1969; Curtis 2522* & *s.n.; Feilberg s.n.; Keith 655; Kerr 5849, 9832, 11603, 11816, 12583, 13828, 14070, 15396, 16376,* & *16535; Marcan 1204; Pierce s.n.; Sangkhachand 581; Schmidt 863; Seidenfaden 2129, 2182,* & *2670; Smitinand 2200.* KOTT NAM KA ISLAND: *Vaughan 306.* MALAYA: Johore: *Ridley 11122; Sinclair 40690.* Kedah: *Curtis 2522; Dolman 21493; Fox s.n.; Haniff 15478; Haniff & Nur 7070; Ridley & Curtis 8320.* Malacca: *Alvins 2138; Derry 40; Griffith s.n.; Holmberg 825; Maguire 1195.* Negri Sembilan: *Alvins 3304.* Pahang: *Kalong 20325.*

[to be continued]